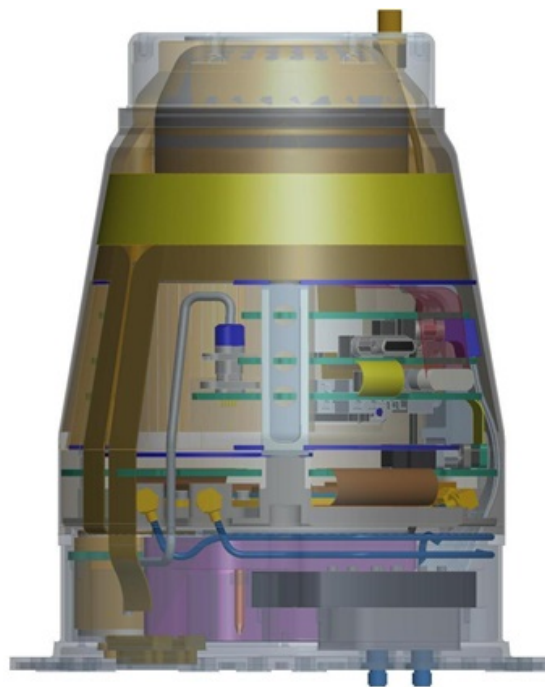




## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-498



### **Air Force Intercontinental Ballistic Missile Fuze Modernization (ICBM Fuze Mod)**

As of FY 2017 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

Air Force Intercontinental Ballistic Missile Fuze Modernization (ICBM Fuze Mod)

**DoD Component**

Air Force

## Responsible Office

Lt Col Cory Brown  
6077 Indigo Lane, Building 1530  
Hill Air Force Base, UT 84056

[cory.brown@us.af.mil](mailto:cory.brown@us.af.mil)

**Phone:** 801-777-4284

**Fax:** 801-586-5643

**DSN Phone:** 777-4284

**DSN Fax:** 586-5643

**Date Assigned:** June 27, 2013

## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated September 29, 2014

**Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated September 29, 2014

## Mission and Description

The mission of the Air Force Intercontinental Ballistic Missile Fuze Modernization program is to develop and produce a form, fit, functional replacement Mk21 Arming and Fuzing Assembly for the legacy Mk21 fuze, which is utilized with the W87 warhead.

The Air Force ICBM Minuteman III (MMIII) fuzes require recapitalization due to the legacy fuze being three times past the original design life. In MMIII sustainment, there is an ongoing refurbishment program; however, this activity will not meet fuze quantity requirements under the current known force structure. The Mk21 replacement fuze is being designed for a 30-year design life which will meet current and future Combatant Command ICBM needs for MMIII and Ground Based Strategic Deterrent. The Air Force is leveraging the Navy's Mk5 Alteration 370 program to maximize commonality and achieve cost savings/avoidance over the lifecycle.

## Executive Summary

The ICBM Fuze Modernization Program is using Department of Defense Instruction (DoDI) 5030.55, Procedures for Joint DoD-Department of Energy (DOE) Nuclear Weapons Life-Cycle Activities (Phase 6.X Process), as the governing acquisition directive for program milestones and activities, with Sandia National Laboratories (SNL) and National Security Campus (NSC) to develop and produce replacement ICBM Fuzes. The program, not categorized as a MDAP when it entered into Phase 6.3, Development Engineering, in August 2013, is now executing a tailored acquisition in compliance with MDAP statutory requirements applicable to entering into Milestone B, the Engineering and Manufacturing Development Phase.

The Air Force and Navy jointly executed an Integrated Baseline Review (IBR) from February 26, 2015 - March 6, 2015, and upon final concurrence of an executable baseline, the design agent, SNL began to officially report EVM data. The program plans for a FY 2022 First Production Unit and delivery of 693 War Reserve fuzes by FY 2030. The fielding plan is contingent upon Air Force Global Strike Command maintenance and logistics planning.

ADM dated September 22, 2015, directed the Air Force to continue to plan and execute the program based on Nuclear Weapons Council, Phase 6.X guidelines while also ensuring all MDAP statutory requirements are met. Since this decision was made after the Phase 6.X equivalent of Milestone B, the program is now working to meet or determine equivalency for all Milestone B relevant statutory requirements.

There are six MDAP statutory requirements not yet complete: Section 2366b Certification, ICE, Replaced System Sustainment Plan (RSSP), Programmatic Environmental Safety & Occupational Health Evaluation (PESHE), LRIP quantities, and Technology Readiness Assessment (TRA). The current 2366b requests and recommends a waiver for the TRA due to the differences in processes used by the National Nuclear Security Administration (NNSA) and the DoD.

1. Section 2366b Certification – entered Secretary of the Air Force/Acquisition (SAF/AQ) coordination on December 28, 2015, estimated approval third quarter FY 2016.
2. ICE – currently under development by Cost Assessment and Program Evaluation (CAPE).
3. RSSP – currently completed as stand-alone document; being incorporated in next version of Life Cycle Sustainment Plan (LCSP); estimated completion third quarter FY 2016.
4. PESHE and National Environmental Policy Act (NEPA)/Executive Order 12114 Compliance Schedule – the PESHE is in development and design considerations are documented in the draft Systems Engineering Plan (SEP). The program submitted the draft SEP for Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) and Secretary of the Air Force for Acquisition of Science and Technology (SAF/AQR) coordination and is adjudicating comments.
5. LRIP Quantities – LRIP Quantities from DoDI 5000.02 do not easily translate to the Phase 6.X process, so the program is working with SAF/AQ to identify how to meet this statutory requirement. The program recommends that Phase 6.5, “First Production Unit,” be equivalent to LRIP and Milestone C. There is no IOC date due to the number of logistics actions out of program control; therefore, the APB established a Required Assets Available (RAA) date. For RAA, the program will deliver 10 fuzes and associated support equipment, and the program recommends this should equal LRIP quantities.
6. TRA – there is a significant distinction between the DoD TRA/Technology Readiness Level (TRL) process and how the NNSA complex and SNL establishes TRLs and conducts TRAs. Currently, DASD(SE) and SAF/AQR maintain that an independent TRA be completed on SNL. The program is partnering with DASD(SE) and SAF/AQR to help them understand the SNL process and determine the best way to tailor the TRA statutory requirement.

The next major milestone is Baseline Design Review (BDR) scheduled for May 2017. The Air Force supported common component BDRs with the Navy in CY 2015 and will begin executing AF-unique component BDRs in mid-FY 2016.

There are no significant software-related issues with this program at this time.

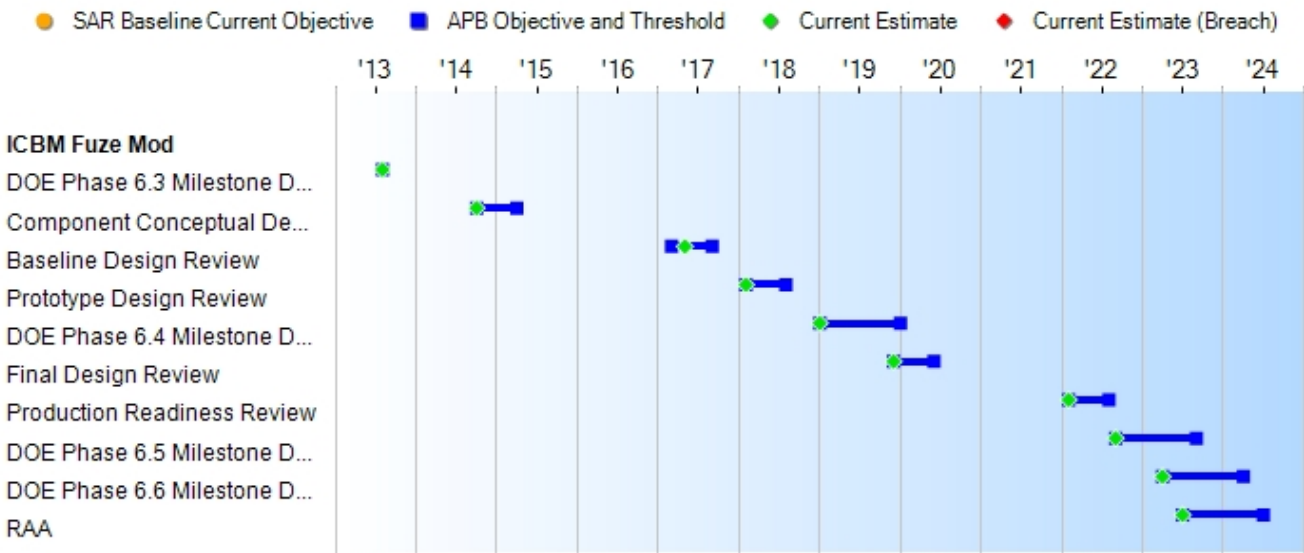


Threshold Breaches

APB Breaches		
Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
DOE Phase 6.3 Milestone Decision (Program Initiation)	Aug 2013	Aug 2013	Aug 2013	Aug 2013
Component Conceptual Design Review	Oct 2014	Oct 2014	Apr 2015	Oct 2014
Baseline Design Review	Mar 2017	Mar 2017	Sep 2017	May 2017
Prototype Design Review	Feb 2018	Feb 2018	Aug 2018	Feb 2018
DOE Phase 6.4 Milestone Decision (Production Engineering)	Jan 2019	Jan 2019	Jan 2020	Jan 2019
Final Design Review	Dec 2019	Dec 2019	Jun 2020	Dec 2019
Production Readiness Review	Feb 2022	Feb 2022	Aug 2022	Feb 2022
DOE Phase 6.5 Milestone Decision (First Production)	Sep 2022	Sep 2022	Sep 2023	Sep 2022
DOE Phase 6.6 Milestone Decision (Full Scale Production)	Apr 2023	Apr 2023	Apr 2024	Apr 2023
RAA	Jul 2023	Jul 2023	Jul 2024	Jul 2023

(Ch-1)

## Change Explanations

(Ch-1) The projected date for BDR slipped from March 2017 to May 2017, which still meets the APB threshold. The delay was primarily caused by technical issues with the MICM as well as a mechanical envelope height issue. Sandia is aggressively working these issues, which are on the critical path to BDR. The PM is assessing the impact of this slip, however it appears there is sufficient margin in the schedule to meet future APB threshold dates. These issues are watch items for EVM and PMR reporting.

## Notes

(1) The USD(AT&L), as the Chairman of the Nuclear Weapons Council, authorized entry into Phase 6.3 Development Engineering in a memo dated August 18, 2013, titled "Air Force Intercontinental Ballistic Missile Fuze Program Phase 6.3 Development Engineering Authorization." For the purpose of acquisition oversight and the APB, the Phase 6.3 milestone is roughly equivalent to Milestone B. During Phase 6.3, the program is executing a LOPB strategy as authorized in the FY 2015 National Defense Authorization Act to maintain commonality with the Navy's Mk5 Alteration 370 program. The production funding supporting LOPB is only being utilized to procure raw materials and sub-parts to reduce nuclear qualification costs during Phase 6.3.

(2) Phase 6.4, "Production Engineering," does not have an equivalent milestone under DoDI 5000.02. The purpose of Phase 6.4 is to adapt the development design into a design suitable for quantity production. At this point, the provisioning of spares also occurs in conjunction with the DoD. At Phase 6.4, the program will seek authorization from the MDA to execute production funding to build components and fuzes supporting test. There is no equivalent LRIP decision point in the program; however, the PEO will review program status before concurring with Phase 6.4 entry. In addition, the program will brief the Nuclear Weapons Council on plans to enter Phase 6.4. Between Phase 6.4 and Phase 6.5 "First Production" the program will execute production funding to support build-up, production process prove-in, and nuclear certification of the ICBM Fuze.

(3) Milestones with threshold dates of 12 months beyond the objective dates reflect the nominal time to recover from an ICBM flight test failure.

(4) RAA is being used as a surrogate for IOC. RAA is defined as ten Mk21 fuzes available for deployment with the technical data, test equipment, and technical training materials required to support wing operations.

## Acronyms and Abbreviations

BDR - Baseline Design Review  
DOE - Department of Energy  
ICBM - Intercontinental Ballistic Missile  
LOPB - Life of Program Buy  
MICM - Missile Interface and Controller Module  
PMR - Program Management Review  
RAA - Required Assets Available

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
System Qualification Attribute 4: Fuze Replacement Design Life				
30-year service life upon DoD custody.	30-year service life upon DoD custody.	20-year service life upon DoD custody.	TBD	30-year service life upon DoD custody.

Classified Performance information is provided in the classified annex to this submission.

### Requirements Reference

AFGSC ICBM Fuze Program Requirements Traceability Memorandum dated December 12, 2013

### Change Explanations

None

### Notes

The ICBM Fuze Modernization program is a form, fit, and functional equivalent replacement for the existing legacy Mk21 AFA with no planned capability increase. AFGSC published the ICBM Fuze Modernization Program Requirements Traceability Memorandum documenting the requirements that must be met by the replacement fuze.

### Acronyms and Abbreviations

AFA - Arming and Fuzing Assembly  
AFGSC - Air Force Global Strike Command

## Track to Budget

RDT&E			
Appn	BA	PE	
Air Force	3600	05	0604222F
	<b>Project</b>	<b>Name</b>	
	654236	Engineering Analysis (Sunk)	
Air Force	3600	05	0604851F
	<b>Project</b>	<b>Name</b>	
	657006	ICBM EMD: Fuze Support (Sunk)	
Air Force	3600	05	0604933F
	<b>Project</b>	<b>Name</b>	
	655082	ICBM Fuze Modernization	

**Notes**

In FY 2011, program efforts began in PE 0604222F and are represented in the Joint Fuze major thrust of project 654236. In FY 2012, program efforts were assigned the unique project number 657006 and were transferred to PE 0604851F. In FY 2013, program efforts were assigned the unique project number 655082 and were transferred to the unique PE 0604933F. Funding remains in PE 0604933F throughout the remainder of the life of the RDT&E efforts.

Procurement			
Air Force	Appn	BA	PE
	3020	03	0101213F
	Line Item	Name	
	M30FLH	MM III Modifications (Shared)	
Air Force	3020	03	0604933F
	Line Item	Name	
	M30FLH	ICBM Fuze Mod	
Air Force	3020	03	0101213F
	Line Item	Name	
	M30MLG	MM III Modifications (Shared)	
<b>Notes:</b> The ICBM Fuze Mod has an individual modification number of 5915 / ICBM Fuze Modernization (Service Life Extension).			

**Notes**

FY 2015 and FY 2016, program efforts are in PE 0101213F and are represented in the MM III Modifications line item 5915 ICBM Fuze Modernization. The FY 2017 production documents reflect PE 0604933 but the funds remain in PE 0101213F in this budget cycle.

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2014 \$M			BY 2014 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	1151.3	1151.3	1266.4	1166.8	1246.1	1246.1	1246.1
Procurement	663.5	663.5	729.9	665.5	829.6	829.6	823.8
Flyaway	--	--	--	665.5	--	--	823.8
Recurring	--	--	--	665.5	--	--	823.8
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1814.8	1814.8	N/A	1832.3	2075.7	2075.7	2069.9

#### Current APB Cost Estimate Reference

Service Cost Position dated June 12, 2014

#### Confidence Level

Confidence Level of cost estimate for current APB: 55%

The life-cycle cost estimate reflects the expected value, or mean, of the cost estimate distribution. It takes into consideration relevant risks, including ordinary levels of external and unforeseen events, aiming to provide sufficient resources to execute the program under normal conditions encountering average levels of technical, schedule, and programmatic risk and external influence.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	88	88	88
Procurement	693	693	693
Total	781	781	781

Quantity Notes

The funded quantity of 781 includes all of the units necessary for development, testing, operational fielding, aging/surveillance, and replenishment spares.

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	255.1	142.6	189.8	178.5	168.0	157.7	123.6	30.8	1246.1
Procurement	4.7	13.7	17.1	6.3	9.8	12.1	34.1	726.0	823.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	259.8	156.3	206.9	184.8	177.8	169.8	157.7	756.8	2069.9
PB 2016 Total	255.9	156.3	208.4	186.6	179.6	171.5	162.8	754.9	2076.0
Delta	3.9	0.0	-1.5	-1.8	-1.8	-1.7	-5.1	1.9	-6.1

#### Funding Notes

The ICBM Fuze Mod program is being executed via a "Work for Others" agreement with the National Nuclear Security Administration and is 100% funded by the Air Force. There are no Department of Energy funds being used to support the design and production of the ICBM Fuze Mod program.

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	88	0	0	0	0	0	0	0	0	88
Production	0	0	0	0	0	0	6	20	667	693
PB 2017 Total	88	0	0	0	0	0	6	20	667	781
PB 2016 Total	88	0	0	0	0	0	6	20	667	781
Delta	0	0	0	0	0	0	0	0	0	0



## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	--	--	--	--	--	9.7
2012	--	--	--	--	--	--	39.7
2013	--	--	--	--	--	--	65.4
2014	--	--	--	--	--	--	82.4
2015	--	--	--	--	--	--	57.9
2016	--	--	--	--	--	--	142.6
2017	--	--	--	--	--	--	189.8
2018	--	--	--	--	--	--	178.5
2019	--	--	--	--	--	--	168.0
2020	--	--	--	--	--	--	157.7
2021	--	--	--	--	--	--	123.6
2022	--	--	--	--	--	--	30.8
Subtotal	88	--	--	--	--	--	1246.1

Annual Funding 3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2014 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	--	--	--	--	--	10.1
2012	--	--	--	--	--	--	40.5
2013	--	--	--	--	--	--	65.6
2014	--	--	--	--	--	--	81.6
2015	--	--	--	--	--	--	56.7
2016	--	--	--	--	--	--	137.7
2017	--	--	--	--	--	--	179.8
2018	--	--	--	--	--	--	166.0
2019	--	--	--	--	--	--	153.1
2020	--	--	--	--	--	--	141.0
2021	--	--	--	--	--	--	108.3
2022	--	--	--	--	--	--	26.4
Subtotal	88	--	--	--	--	--	1166.8

Annual Funding							
3020   Procurement   Missile Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2015	--	--	4.7	--	4.7	--	4.7
2016	--	--	13.7	--	13.7	--	13.7
2017	--	--	17.1	--	17.1	--	17.1
2018	--	--	6.3	--	6.3	--	6.3
2019	--	--	9.8	--	9.8	--	9.8
2020	6	9.2	2.9	--	12.1	--	12.1
2021	20	27.5	6.6	--	34.1	--	34.1
2022	80	80.1	8.5	--	88.6	--	88.6
2023	106	92.3	20.3	--	112.6	--	112.6
2024	118	105.4	24.2	--	129.6	--	129.6
2025	121	113.2	26.5	--	139.7	--	139.7
2026	121	98.8	30.4	--	129.2	--	129.2
2027	121	75.6	31.9	--	107.5	--	107.5
2028	--	--	7.7	--	7.7	--	7.7
2029	--	--	5.2	--	5.2	--	5.2
2030	--	--	5.9	--	5.9	--	5.9
Subtotal	693	602.1	221.7	--	823.8	--	823.8

Annual Funding							
3020   Procurement   Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2014 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2015	--	--	4.5	--	4.5	--	4.5
2016	--	--	12.9	--	12.9	--	12.9
2017	--	--	15.9	--	15.9	--	15.9
2018	--	--	5.7	--	5.7	--	5.7
2019	--	--	8.7	--	8.7	--	8.7
2020	6	8.0	2.6	--	10.6	--	10.6
2021	20	23.6	5.6	--	29.2	--	29.2
2022	80	67.3	7.1	--	74.4	--	74.4
2023	106	76.0	16.7	--	92.7	--	92.7
2024	118	85.1	19.5	--	104.6	--	104.6
2025	121	89.6	21.0	--	110.6	--	110.6
2026	121	76.7	23.6	--	100.3	--	100.3
2027	121	57.5	24.2	--	81.7	--	81.7
2028	--	--	5.7	--	5.7	--	5.7
2029	--	--	3.8	--	3.8	--	3.8
2030	--	--	4.2	--	4.2	--	4.2
Subtotal	693	483.8	181.7	--	665.5	--	665.5

## Low Rate Initial Production

There is no LRIP for this program.

**Foreign Military Sales**

None

**Nuclear Costs**

None

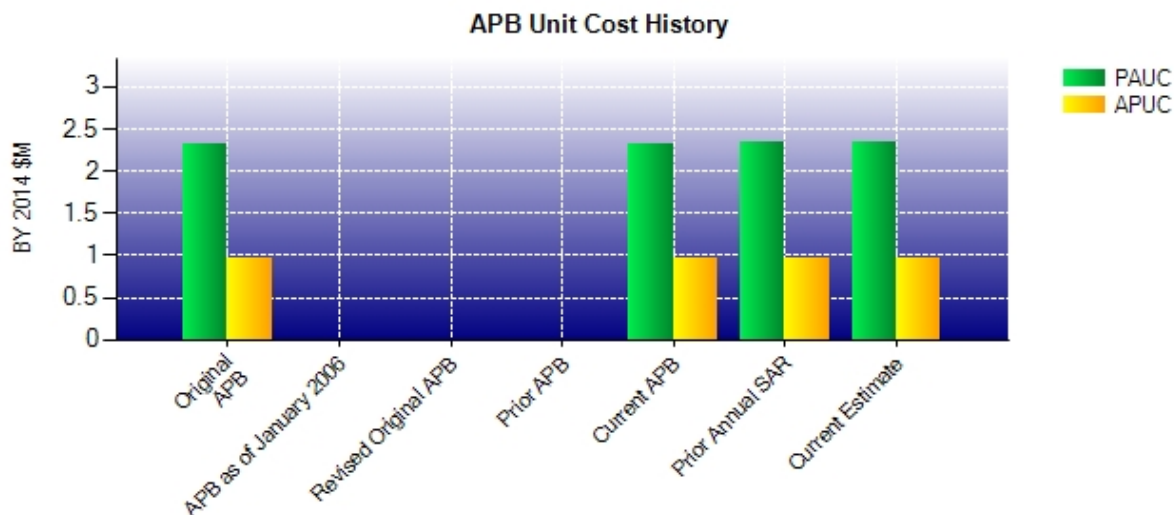
## Unit Cost

### Unit Cost Report

Item	BY 2014 \$M	BY 2014 \$M	% Change
	Current UCR Baseline (Sep 2014 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	1814.8	1832.3	
Quantity	781	781	
Unit Cost	2.324	2.346	+0.95
Average Procurement Unit Cost			
Cost	663.5	665.5	
Quantity	693	693	
Unit Cost	0.957	0.960	+0.31

Item	BY 2014 \$M	BY 2014 \$M	% Change
	Original UCR Baseline (Sep 2014 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	1814.8	1832.3	
Quantity	781	781	
Unit Cost	2.324	2.346	+0.95
Average Procurement Unit Cost			
Cost	663.5	665.5	
Quantity	693	693	
Unit Cost	0.957	0.960	+0.31

## Unit Cost History



Item	Date	BY 2014 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Sep 2014	2.324	0.957	2.658	1.197
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Sep 2014	2.324	0.957	2.658	1.197
Prior Annual SAR	Dec 2014	2.339	0.962	2.658	1.198
Current Estimate	Dec 2015	2.346	0.960	2.650	1.189

## SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.658	-0.035	0.000	0.000	0.000	0.027	0.000	0.000	-0.008	2.650

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1.197	-0.013	0.000	0.000	0.000	0.005	0.000	0.000	-0.008	1.189



SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Aug 2013	N/A	Aug 2013
Milestone C	N/A	Feb 2022	N/A	Feb 2022
IOC	N/A	Jul 2023	N/A	Jul 2023
Total Cost (TY \$M)	N/A	2075.7	N/A	2069.9
Total Quantity	N/A	781	N/A	781
PAUC	N/A	2.658	N/A	2.650

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	1246.1	829.6	--	2075.7
Previous Changes				
Economic	-10.3	-4.4	--	-14.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+10.3	+4.7	--	+15.0
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	+0.3	--	+0.3
Current Changes				
Economic	-7.3	-4.6	--	-11.9
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+7.3	-1.5	--	+5.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	-6.1	--	-6.1
Total Changes	--	-5.8	--	-5.8
CE - Cost Variance	1246.1	823.8	--	2069.9
CE - Cost & Funding	1246.1	823.8	--	2069.9

Summary BY 2014 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	1151.3	663.5	--	1814.8
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+8.6	+3.3	--	+11.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+8.6	+3.3	--	+11.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+6.9	-1.3	--	+5.6
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+6.9	-1.3	--	+5.6
Total Changes	+15.5	+2.0	--	+17.5
CE - Cost Variance	1166.8	665.5	--	1832.3
CE - Cost & Funding	1166.8	665.5	--	1832.3

Previous Estimate: December 2014

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-7.3
Adjustment due to return of OMNIBUS. (Estimating)	+5.8	+5.8
Adjustment due to Small Business Innovation Research. (Estimating)	-1.9	-1.9
Adjustment for current and prior escalation. (Estimating)	+1.5	+1.5
Adjustment due to escalation changes. (Estimating)	+1.5	+1.9
RDT&E Subtotal	+6.9	0.0

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-4.6
Adjustment due to escalation indices (Estimating)	-1.3	-1.5
Procurement Subtotal	-1.3	-6.1

## Contracts

### Contract Identification

**Appropriation:** RDT&E  
**Contract Name:** ICBM Fuze Weapons System Integration  
**Contractor:** Lockheed Martin Corporation  
**Contractor Location:** 230 Mall Blvd  
 King of Prussia, PA 19406-2902  
**Contract Number:** FA8214-14-D-0002/3  
**Contract Type:** Cost Plus Fixed Fee (CPFF), Cost (CR)  
**Award Date:** January 29, 2015  
**Definitization Date:** January 29, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
96.2	N/A	0	96.2	N/A	0	96.2	96.2

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/27/2015)	+0.7	-0.2
Previous Cumulative Variances	0.0	0.0
Net Change	+0.7	-0.2

### Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to efficiencies and better than expected performance on several activities.

The unfavorable cumulative schedule variance is due to some analysis work being more complex than planned and there was a change in government requirements (de-scope) on contract. The contractor was originally tasked to develop a Software Transition Plan that is now not required. This task is being removed from the contract in an upcoming modification.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	3	3	88	3.41%
Production	0	0	693	0.00%
Total Program Quantity Delivered	3	3	781	0.38%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	2069.9	Years Appropriated	6
Expended to Date	240.7	Percent Years Appropriated	30.00%
Percent Expended	11.63%	Appropriated to Date	416.1
Total Funding Years	20	Percent Appropriated	20.10%

The above data is current as of February 09, 2016.

The funded quantity of 781 includes all of the units necessary for development, testing, operational fielding, aging/surveillance, and replenishment spares.

## Operating and Support Cost

### Cost Estimate Details

**Date of Estimate:** June 12, 2014  
**Source of Estimate:** SCP  
**Quantity to Sustain:** 450  
**Unit of Measure:** Missile  
**Service Life per Unit:** 30.00 Years  
**Fiscal Years in Service:** FY 2027 - FY 2060

ICBM Fuze Mod O&S costs are the additive costs for sustaining the Mk21 replacement fuze being delivered by this program. O&S costs for the Mk21 replacement fuze, and current Mk12A and Mk21 fuzes, will be collected as part of the overall Minuteman III weapon system. The funded quantity of 781 includes all of the units necessary for development, testing, operational fielding, aging/surveillance, and replenishment spares. The sustainment strategy is built around sustaining the 450 operational missiles, not the total quantity of fuzes.

### Sustainment Strategy

Throughout the O&S phase, National Security Campus (formerly Kansas City Plant) will provide aging/surveillance and depot level testing and support for the new fuze; Sandia National Laboratories will provide systems engineering, sustainment engineering support, and surveillance engineering support from both California and New Mexico.

It is anticipated that there will be annual shipments of Mk21 replacement fuzes from the three wings to the new National Security Campus depot each year for aging/surveillance, reliability testing and depot repair. As items are received at the depot from the wings, replenishment spares will be shipped to the wings from the depot on an annual basis.

The National Nuclear Security Administration will provide management and oversight support to the Intercontinental Ballistic Missile Systems Directorate for the Mk21 replacement fuzes throughout their 30-year life cycle.

### Antecedent Information

No Antecedent

Annual O&S Costs BY2014 \$K		
Cost Element	ICBM Fuze Mod Average Annual Cost Per Missile	None (Antecedent) None
Unit-Level Manpower	0.000	--
Unit Operations	0.000	--
Maintenance	6.873	--
Sustaining Support	11.994	--
Continuing System Improvements	0.000	--
Indirect Support	0.000	--
Other	0.000	--
Total	18.867	--

Because the fuze is a relatively small component within the framework of the much larger Minuteman III weapon system it is not expected that there will be any change to unit level manpower, continuing system improvements, or indirect support at the wings or depot.

Item	Total O&S Cost \$M			
	ICBM Fuze Mod			None (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	259.0	285.0	254.7	N/A
Then Year	466.0	N/A	456.0	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

#### Equation to Translate Annual Cost to Total Cost

Average Annual Missile O&S Cost = Total O&S cost / number of missiles / service life of fuze

\$18.9K = \$254.7M / 450 / 30

O&S Cost Variance		
Category	BY 2014 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	254.7	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	254.7	

#### Disposal Estimate Details

**Date of Estimate:** June 12, 2014  
**Source of Estimate:** SCP  
**Disposal/Demilitarization Total Cost (BY 2014 \$M):** Total costs for disposal of all Missile are 4.3

Demilitarization and disposal will be a coordinated effort between the Air Force and the National Nuclear Security Administration Complex. Older fuzes that are no longer fielded will remain in storage in the Nuclear Materials storage facility located at Hill Air Force Base (AFB), Utah, until demilitarization begins in FY 2056.

Beginning in FY 2056, the Air Force will begin receiving shipments of aged-out fuzes for demilitarization and disposal. It is expected that quarterly shipments from each wing will be sent to the Nuclear Materials storage area at Hill AFB in preparation for demilitarization and disposal.

Demilitarization engineering support will be provided by a support contractor to coordinate removal of precious and environmentally sensitive material from the Mk21 replacement fuzes prior to disposal.



An environmentally protective container will be used to house the demilitarized fuzes for the disposal process. Each container is estimated to hold approximately 66 fuzes.

Fuzes ready for disposal will be transferred from the National Security Campus to the approved disposal site. The projected disposal process will consist of deep earth burial on the Utah Test and Training Range in demilitarized containers.